



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/803,613	03/05/2001	G. Dickey Arndt	MSC-23153-1	8763
24957	7590	06/28/2005	EXAMINER	
NASA JOHNSON SPACE CENTER MAIL CODE HA 2101 NASA RD 1 HOUSTON, TX 77058			TERESINSKI, JOHN	
			ART UNIT	PAPER NUMBER
			2858	

DATE MAILED: 06/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	09/803,613	ARNDT ET AL.
	Examiner	Art Unit
	John Teresinski	2858

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM  
 THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) Responsive to communication(s) filed on 05 April 2005.
- 2a) This action is **FINAL**.                            2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) Claim(s) 1-80 is/are pending in the application.
- 4a) Of the above claim(s) 46-52 is/are withdrawn from consideration.
- 5) Claim(s) 1-36 and 53-65 is/are allowed.
- 6) Claim(s) 37-41,66-76 and 78-81 is/are rejected.
- 7) Claim(s) 42-45 is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
 Paper No(s)/Mail Date \_\_\_\_\_
- 4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date. \_\_\_\_\_
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: \_\_\_\_\_

## DETAILED ACTION

### *Election/Restrictions*

Claims 46-52 remain withdrawn from consideration as being drawn to a non-elected invention with traverse.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 37, 38 and 41 are rejected under 35 U.S.C. 102(a) as being anticipated by U.S. Patent No. 6,204,670 to Joshi et al..

Regarding claim 37, Joshi et al. disclose a single elongate conductive strip (Fig. 12, “strip line conductor”), a conductive ground plane (Fig. 12 “lower ground plane”), a substrate mounted on an opposite side of a superstrate, the substrate separating the single elongate conductive strip and the conductive ground plane (Fig. 12) and a detector being operable for measuring a phase angle/time delay associated with energy applied to the transmission line and utilizing the phase angle for distinguishing between predetermined substrates (column 8 lines 47-64).

Regarding claim 38, Joshi et al. disclose sensing a thickness of the superstrate up to about one inch (column 6 lines 45-57), and a second waveguide, said second waveguide comprising a center conductor and two outer conductors mounted such that said center conductor is disposed between said two outer conductors forming a space on either side of said center conductor (Fig.

Art Unit: 2858

13), said spacing being selected such that a signal produced by said second waveguide is substantially insensitive to said thickness of said superstrate (column 6 lines 45-57).

Regarding claim 41, Joshi et al. disclose a portion of the substrate is porous (column 8 lines 4-16).

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 39, 40, 76 and 78-81 are rejected under 35 U.S.C. 103(a) as being unpatentable over Joshi et al..

Regarding claims 39 and 40, Joshi et al. disclose a substrate but fails to disclose the substrate with a thickness of 00.75 to 0.150 inches or a dielectric constant of about 5. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a substrate with the cited characteristics since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Gardner*, 220 USPQ 777 (CAFC 1984).

Regarding claim 76, Joshi et al. disclose an elongate transmission line with a thickness to conform to a surface (Fig. 10), a measuring cell formed integrally with and along the transmission line such that the measurement cell must be present for continuity of the

transmission line (Fig. 1) and wherein the measurement cell is exposed to the environment (Fig. 10), a microwave signal source for exciting the transmission line, a detector for receiving a signal from the transmission line and a processor for processing the signal from the transmission line (column 9 lines 30-35), wherein the measurement cell is necessary for transmission of the microwave signal (Fig. 1). Joshi et al. fails to disclose the a transmission line greater than ten feet long and having a thickness less than about one tenth of an inch. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a transmission line with the cited characteristics since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Gardner*, 220 USPQ 777 (CAFC 1984).

Regarding claims 78-80, Joshi et al. disclose varying the frequency of the microwave source (column 6 lines 40-44).

Regarding claim 81, Joshi et al. disclose a metallic material (column 5 lines 56-60).

Claims 66- 75 are rejected under 35 U.S.C. 103(a) as being unpatentable over Misra in view of Joshi et al..

Regarding claim 66 and 75, Misra discloses a method and apparatus for measuring an amplitude and phase for each of the plurality of frequencies (column 6 lines 30-35) to produce an observed data vector and estimating a complex constant for said one or more measurement positions to produce an estimated data vector in the microwave frequency range (column 5 lines 4-16). Misra does not disclose the waveguide comprised of covered and uncovered sections and measurement positions are comprised of covered positions. Joshi et al. disclose a a method and

apparatus for characterizing superstrates including a microwave waveguide with covered and uncovered sections wherein the measurement sections are comprised of the uncovered section of the waveguide (Fig. 7). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include to include a waveguide sensor as taught by Joshi et al. into Misra for the purpose of providing test results with increased accuracy.

Regarding claim 67, Misra disclose providing that characteristic impedance and propagation constants of the waveguide are known when the waveguide is covered by a superstrate (column 4 lines 31-41).

Regarding claims 68, 69, and 71-75, Misra discloses comparing the observed data vector with the estimated data vector to produce a difference data vector and reiterating steps of estimating and comparing until said difference data vector approaches zero, and determining a final estimated complex constant for each of the superstrates due to temperature changes (column 7 lines 1-23).

Regarding claim 70, Misra discloses constraining values of the estimated complex constant for each of the one or more measurement positions to discrete values (column 5 lines 57-62).

*Allowable Subject Matter*

Claims 1-36 and 53-65 are allowed.

Claims 42-45 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is an examiner's statement of reasons for allowance:

Regarding claim 42:

The primary reason for the allowance of claim 42 is the inclusion of a plurality of measurements cells disposed along the strip. It is these features found in the claim, as they are claimed in the combination that has not been found, taught or suggested by the prior art of record, which makes this claim allowable over the prior art.

Claims 43-45 are allowed due to their dependency on claim 1.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

#### *Response to Arguments*

Applicant's arguments with respect to claims 1-45 and 53-80 have been considered but are moot in view of the new ground(s) of rejection.

#### *Conclusion*

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Teresinski whose telephone number is (571) 272-2235. The examiner can normally be reached on M-F 8:30 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Lefkowitz can be reached on (571) 272-2180. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JT  
JT  
June 21, 2005

*Anjan Deb*  
ANJAN DEB  
PRIMARY EXAMINER